

## THE J. PEDRO DURET MOSQUITO COLLECTION (DIPTERA: CULICIDAE)<sup>1</sup>

RALPH E. HARBACH, THOMAS V. GAFFIGAN AND JAMES E. PECOR<sup>2</sup>

*Walter Reed Biosystematics Unit, Department of Entomology, Walter Reed Army Institute of Research, Washington, DC 20307-5100*

**ABSTRACT.** Acquisition of the J. Pedro Duret mosquito collection by the Smithsonian Institution is reported. The collection contains more than 14,000 individually pinned and labeled adult mosquitoes, including 39 primary type specimens. It also includes some 7,800 male genitalia preparations and 900 larval and pupal exuviae on microscope slides. A complete list of Duret species-group names is included, with label data for holotype specimens contained in the collection.

### INTRODUCTION

The mosquito collection of Dr. J. Pedro Duret of Buenos Aires, Argentina is now the property of the Smithsonian Institution. In July 1990, this extensive collection was purchased by the National Museum of Natural History (NMNH) and successfully packed and shipped to Washington, DC by E.L. Peyton and Richard C. Wilkerson of the Walter Reed Biosystematics Unit. The collection was acquired through the joint efforts of Wayne N. Mathis, Department of Entomology, NMNH, Smithsonian Institution and the senior author. Funds for the purchase were obtained from the Smithsonian Collections Acquisition Program.

Dr. Duret's collection is an outstanding addition to the NMNH Mosquito Collection. It includes over 14,000 pinned, identified adults, representing nearly 500 species, or about 55% of the known fauna of Middle and South America. Some 7,800 specimens have associated dissected genitalia and another 900 have associated larval and pupal exuviae on microscope slides. The collection also contains 39 holotypes, 5 allotypes, and 135 paratypes of species named by Dr. Duret. A general inventory of the contents of the collection is provided in Table 1. The material constitutes the most complete mosquito collection ever assembled for Argentina, and also includes extensive series of specimens from Paraguay and Brazil and many excellent series from several other countries. The individual specimens were collected, expertly prepared and curated, and authoritatively identified by Dr. Duret while he served as a medical entomologist with the Argentine Army and a consultant for the Pan American Health Organization. The labels and collection records associated with the specimens bear ecological and behavioral data of importance to current and future studies on the mosquito fauna

of the Neotropical Region.

Dr. Duret's collection was the last major mosquito collection in private hands. For New World mosquitoes, it ranks second in importance after the J.N. Belkin collection which was acquired by the Smithsonian Institution in 1981.

### THE MOSQUITOES NAMED BY J. PEDRO DURET

The Duret species represented by type specimens now residing in the Smithsonian Institution are listed here in alphabetical order. The following information is provided for each species name: reference to the original description; current generic and subgeneric placement or taxonomic status; verbatim label data from the holotype; and the number of secondary type specimens. Some secondary type specimens are deposited in other collections. The original publications should be consulted for the whereabouts of these specimens.

**aliciae** Duret, 1953:75; 1954a:106. *Culex* (*Melanoconion*).

Holotype male: "2.V.49/Argentina/Misiones/Cerro Azul/Col. DURET/[underside of label] Mis.13.8//HOLOTIPO//Culex (Melanoc.)/aliciae sp. n./J.P. Duret Det. 1952." Paratypes - 6 males.

**bahiensis** Duret, 1969b:40. *Culex* (*Melanoconion*). Holotype male: "VIII.53/Brazil/Bahia/Urucu/Col. Duret/[underside of label] 2427/Br.17./E.9//HOLOTIPO//2427//Culex (Melanoc.)/bahianse sp. n./J.P. Duret - Det. 1969." Paratypes - none.

**bejaranoi** Duret, 1953:75; 1954a:109. *Culex* (*Melanoconion*). Holotype male: "18.III.51/Argentina/Misiones/B. de Irigoyen/Col. DURET/[underside of label] C.M.P.H.M./A.U.93.20//HOLOTIPO//Culex (Melanoc.)/bejaranoi sp. n./J.P. Duret - Det. 1952." Paratypes - 2 males.

**belemensis** Duret and Damasceno, 1955: 404. *Culex* (*Anoediopora*), originally placed in the subgenus *Tinolestes*. Holotype male: "15.VIII.53/Brasil/PARA/Belem/Col. Duret/[underside of label] Br.15/E.10/

<sup>1</sup>The views of the authors do not purport to reflect the views of the Department of the Army or the Department of Defense.

<sup>2</sup> Reprint requests: Walter Reed Biosystematics Unit, Museum Support Center, Smithsonian Institution, Washington, DC 20560.

**Table 1.** Summary of the contents of the J. Pedro Duret mosquito collection. Twenty-two genera, 53 subgenera, and at least 497 described species are represented in the collection.

Genus	No. subgenera	No. species
<i>Anopheles</i>	6	55
<i>Chagasia</i>	1	3
<i>Aedeomyia</i>	1	1
<i>Aedes</i>	5	41
<i>Haemagogus</i>	1	12
<i>Psorophora</i>	3	30
<i>Culex</i>	8	174
<i>Deinocerites</i>	1	10
<i>Culiseta</i>	2	3
<i>Coquillettidia</i>	1	11
<i>Mansonia</i>	1	8
<i>Orthopodomyia</i>	1	3
<i>Johnbelkinia</i>	1	3
<i>Limatus</i>	1	7
<i>Phoniomyia</i>	1	12
<i>Sabethes</i>	4	18
<i>Shannoniana</i>	1	1
<i>Runchomyia</i>	3	6
<i>Trichoprosopon</i>	1	8
<i>Wyeomyia</i>	6	63
<i>Uranotaenia</i>	1	19
<i>Toxorhynchites</i>	2	9

4012//HOLOTIPO//4012//Culex (Tinolestes)/belemensis sp. n./J.P. Duret - Det. 1955/& Damasceno." Paratypes - none.

**chitae** Duret, 1967b:113. *Culex* (*Culex*). Holotype male: "I.60/Colombia/Bogota/Monserrat/Col. Duret/[underside of label] 2,900 m/#334//HOLOTIPO//334//Culex (*Culex*)/chitae sp. n./J.P. Duret - Det. 1967." Paratype - 1 male.

**contei** Duret, 1968c:121. *Culex* (*Melanoconion*). Holotype male: "9.VII.63/Brasil/PARA/S. Miguel do/Guama/[underside of label] Col. Duret/2226//HOLOTIPO//2226//Culex (*Melanoc.*)/contei sp. n./J.P. Duret - Det. 1968." Paratype - 1 male.

**crisovaoi** Duret, 1968a:14. *Culex* (*Melanoconion*). Holotype male: "7.VII.64/Brasil/Roraima/Caracari/Col. Duret/[underside of label] 1883//HOLOTIPO//1883//Culex (*Melanoc.*)/crisovaoi sp. n./J.P. Duret - Det. 1968." Paratypes - none.

**cuyan** Duret, 1968d:323. *Culex* (*Culex*). Holotype male: "XI.53/Argentina/S. Juan/Jachal/Col. DURET/[underside of label] 768//HOLOTIPO//768//Culex (*Culex*)/cuyan sp. nov./J.P. Duret - Det. 1967." Paratypes - 6 males.

**damascenoi** Duret, 1969c:143. *Culex* (*Anoediopora*).

Holotype male: "18.VII.64/Brasil/Amazonas/J. Goulard/rio Preto/Col. DURET/[underside of label] 2275//HOLOTIPO//2275//Culex (*Anoediop.*)/damascenoi sp. n./J.P. Duret - Det. 1969." Paratypes - none.

**delpontei** Duret, 1969a:8. *Culex* (*Melanoconion*). Holotype male: "16.XI.49/Argentina/Chaco/Las Palmas/Col. Duret/[underside of label] 2177/A.51.20//HOLOTIPO//2177//Culex (*Melanoc.*)/delpontei sp. n./J.P. Duret - Det. 1968." Paratypes - 5 males.

**dominguezi** Duret, 1971b:83. Currently regarded as a junior synonym of *Haemagogus* (*Haemagogus*) *anastasionis* Dyar; originally placed in the subgenus *Stegoconops*. Holotype male: "1961/Nicaragua/Elaya/Col. Duret/[underside of label] Dominguez/leg.//HOLOTIPO//7258//Haemagogus (*Steg.*)/dominguezi sp. n./J.P. Duret - Det. 1971." Paratypes - none.

**ernanii** Duret, 1968f:74. *Culex* (*Melanoconion*). Holotype male: "9.VII.64/Brasil/Roraima/Boa Vista/Col. Duret/[underside of label] 1730//HOLOTIPO//1730//Culex (*Melanoc.*)/ernanii sp. n./J.P. Duret - Det. 1967." Paratypes - none.

**faurani** Duret, 1968f:77. *Culex* (*Melanoconion*). Holotype male: "28.VI.63/Brasil/Amazonas/Manaos/Col. Duret/[underside of label] 1940//HOLOTIPO//1940//Culex (*Melanoc.*)/faurani sp. n./J.P. Duret - Det. 1967." Paratypes - 2 males.

**ferraro** Duret, 1971a:25. Currently regarded as a junior synonym of *Psorophora* (*Janthinosoma*) *varipes* Coquillett. Holotype male: "15.VI.62/El Salvador/La Libertad/Rio Amargo/Col. Duret//HOLOTIPO//6466//Psorophora (*Janthino-/soma*) ferraro sp. n./J.P. Duret - Det. 1971." Paratypes - 4 males.

**ferreri** Duret, 1968f:79. *Culex* (*Melanoconion*). Holotype male: "22.III.61/Colombia/N. Santander/Cucuta/Col. Duret/[underside of label] Agua Clara/localidad/#51//HOLOTIPO//51//Culex (*Melanoc.*)/ferreri sp. n./J.P. Duret - Det. 1967." Paratypes - 9 males.

**flochi** Duret, 1969d:119. *Culex* (*Melanoconion*). Holotype male: "21.VIII.53/Brasil/Para Moju/Yaguarari/Col. Duret/[underside of label] 2283//HOLOTIPO//2283//Culex (*Melanoc.*)/flochi sp. n./J.P. Duret - Det. 1969." Allotype female; paratypes - 9 females and 18 males.

**galvaoi** Duret, 1968b:60. *Culex* (*Melanoconion*), originally placed in the subgenus *Mochlostyrax*. Holotype male: "15.VII.53/Brasil/E. de Rio/Chere/Col. Duret/[underside of label] 2414//HOLOTIPO//2414//Culex (*Mochlostyrax*)/galvaoi sp. nov./J.P. Duret - Det. 1968." Paratypes - none.

**garcesi** Duret, 1968b:63. *Culex* (*Melanoconion*), originally placed in the subgenus *Mochlostyrax*. Holotype male: "17.I.60/Colombia/Dep. Choco/Quibdo/Col. Duret/[underside of label] 3354//HOLOTIPO//3354//Culex (*Mochlostyrax*)/garcesi sp. nov./J.P. Duret - Det. 1968." Paratypes - none.

**gorgasi** Duret, 1971a:15. *Sabethes* (*Sabethinus*). Holotype

- male: "26.VIII.58/Panama/Rio Chagres/Juan Mina/Col. Duret//HOLOTIPO//5814//Sabethes (Sabethi-nus) gorgasi sp. n./J.P. Duret Det. 1971." Paratypes - none.
- gutierrezii** Duret, 1971a:17. *Wyeomyia* (*Dendromyia*). Holotype male: "28.IX.61/Costa Rica/Cton. Aguirre/Distr. Savegre/El Paso/[underside of label] Col. Duret//HOLOTIPO//5873//Wyeomyia (Dendro-myia) gutierrezii sp. n./J.P. Duret - Det. 1971." Paratypes - none.
- isabelae** Duret, 1968f:72. *Culex* (*Melanoconion*). Holotype male: "3.VII.64/Brasil/Roraima/Caracarai/Col. Duret/[underside of label] 1925//HOLOTIPO//1925//Culex (Melanoc.)/isabelae n. sp./J.P. Duret - Det. 1967." Paratypes - none.
- johnnyi** Duret, 1968e:17. *Culex* (*Melanoconion*). Holotype male: "18.VII.64/Brasil/Amazonas/J. Goulard/Col. Duret/[underside of label] rio Preto/723//HOLOTIPO//723//Culex (Melanoc.)/johnnyi sp. n./J.P. Duret Det. 1968." Paratypes - none.
- kerri** Duret, 1968a:11. Currently regarded as a junior synonym of *Culex* (*Melanoconion*) *phlabistus* Dyar. Holotype male: "17.VII.64/Brasil/Amazonas/Joao Goulard/Col. Duret/[underside of label] Rio Preto/1858//HOLOTIPO//1858//Culex (Melanoc.)/kerri sp. n./J.P. Duret - Det. 1968." Paratypes - 1 male.
- misionensis** Duret, 1953:75; 1954a:115. *Culex* (*Melanoconion*). Holotype male: "23.II.51/Argentina/Misiones/Arist. del Valle/Col. DURET/[underside of label] C.M.P.H.M./A.U.23.14//HOLOTIPO//Culex (Melanoc.)/misionensis sp. n./J.P. Duret - Det. 1952." Paratypes - none.
- mojuensis** Duret and Damasceno, 1955:401. Currently regarded as a junior synonym of *Culex* (*Tinolestes*) *breviculus* Senevet and Abonnenc. Holotype male: "22.VIII.53/Brasil/PARA/Oriboca/Col. Duret/[underside of label] Br.49/E.4/4013//HOLOTIPO//4013//Culex (Tinolestes)/mojuensis sp. n./J.P. Duret - Det. 1955/& Damasceno." Allotype female.
- nicaroensis** Duret, 1967a:77. *Culex* (*Melanoconion*). Holotype male: "9.VI.59/CUBA/Oriente/Mayari/Nicar/Col. DURET/[underside of label] en Cuba/de Cangrejo/#1611//HOLOTIPO//1611//Culex (Melanoc.)/nicaroensis sp. n./J.P. Duret - Det. 1967." Allotype female; paratypes - 3 females, 8 males.
- orfilai** Duret, 1953:74; 1954a:117. *Culex* (*Melanoconion*). Holotype male: "21.XI.51/Argentina/Misiones/Iguazu/Col. Duret/[underside of label] C.M.P.H.M./D.O.69.20//HOLOTIPO//Culex (Melanoc.)/orfilai sp. n./J.P. Duret Det. 1952." Paratypes - 4 males.
- palaciosi** Duret, 1968e:15. *Culex* (*Melanoconion*), originally placed in the subgenus *Mochlostyrax*. Holotype male: "8.VII.64/Brasil/Roraima/Boa Vista/Col. Duret/[underside of label] 1817//HOLOTIPO//1817//Culex (Mochlost.)/palaciosi sp. n./J.P. Duret Det. 1967." Paratypes - 15 males.
- paramaxi** Duret, 1968b:57. *Culex* (*Culex*). Holotype male: "6.V.64/Brasil/M. Gerais/Ing. Dolabella/Col. Duret/[underside of label] 672//HOLOTIPO//672//Culex (Culex)/paramaxi sp. n./J.P. Duret - Det. 1968." Paratypes - none.
- pereyrai** Duret, 1967a:81. *Culex* (*Melanoconion*). Holotype male: "25.X.55/Paraguay/Caaguazu/Cecilio Baez/Col. Duret/[underside of label] 1390//HOLOTIPO//1390//Culex (Melanoc.)/pereyrai/J.P. Duret - Det. 1967." Paratypes - none.
- pilosus** Duret, 1971a:22. *Psorophora* (*Janthinosoma*). Holotype male: "3.XI.60/Colombia/N. Santander/Mun. Cucuta/Agua Clara/[underside of label] Col. Duret//HOLOTIPO//6452//Psorophora (Janthino-soma) pilosus sp. n./J.P. Duret - Det. 1971." Paratypes - none.
- pseudoalbipes** Duret, 1971a:20. *Psorophora* (*Janthinosoma*). Holotype male: "8.XI.60/Colombia/Dep. N. de Santander/Munic. Cucuta/Tibu/[underside of label] Col. Duret//HOLOTIPO//6182//Psorophora (Janthino-soma) pseudoalbipes sp. n./J.P. Duret - Det. 1971." Paratypes - none.
- quasioriginator** Duret, 1972:3. *Culex* (*Anoediopora*). Holotype male: "16.I.63/Brasil/Para. Belem/Pirelli/Col. Duret//HOLOTIPO//1334//Culex (Anoed.)/quasioriginator sp. n./J.P. Duret - Det. 1971." Paratypes - 15 males.
- rachoui** Duret, 1968b:58. *Culex* (*Melanoconion*). Holotype male: "24.VI.64/Brasil/Para. Capin/Paragominas/Col. Duret/[underside of label] 2256//HOLOTIPO//2258 [sic]//Culex (Melanoc.)/rachoui sp. nov./J.P. Duret - Det. 1968." Paratypes - 2 males.
- riojanus** Duret, 1968d:326. *Culex* (*Culex*). Holotype male: "17.XI.53/Argentina/La Rioja/Chamical/Col. DURET/[underside of label] 777//HOLOTIPO//777//Culex (Culex)/riojanus sp. nov./J.P. Duret - Det. 1967." Paratypes - 3 males.
- riverai** Duret, 1970:43. *Uranotaenia* (*Uranotaenia*), originally without subgeneric placement. Holotype male: "20.I.60/Colombia/Bogota/2700 m./Col. Duret/[underside of label] en casa//HOLOTIPO//5596//Uranotaenia/riverai sp. nov./J.P. Duret - Det. 1970." Allotype female; paratypes - 1 female, 1 male.
- silvai** Duret, 1968f:69. *Culex* (*Melanoconion*). Holotype male: "6.VII.64/Brasil/Roraima/Caracarai/Col. Duret/[underside of label] 85//HOLOTIPO//85//Culex (Melanoc.)/silvai sp. n./J.P. Duret Det. 1967." Paratypes - none.
- sirivanakami** Duret, 1982:167. *Wyeomyia* (*Dendromyia*). Holotype male: "I.1958/Panama/Darien/Col. Duret/[underside of label] J.O. Conte leg//HOLOTIPO//5862//Wyeomyia (Dendr.)/sirivanakami sp. n./J.P. Duret - Det. 1982." Paratypes - none.
- tramazayguesi** Duret, 1954b:23. *Culex* (*Allimanta*), originally placed in the subgenus *Culex*. Holotype male:

"16.XII.53/Mendoza/Monte Coman/Col. D.H.M.P/M.R.110/E.1//HOLOTIPO//Culex (Culex)/tramazayguesi/sp. n./J.P. Duret - Det. 1954." Allotype female; paratypes - 12 females, 7 males.

During his career, Dr. Duret described three mosquito species with M. Pereira Barreto, but did not retain type specimens of these in his personal collection. The three species include *aureonotatus* Duret and Barreto, 1956: 91; *bifoliolatus* Duret and Barreto, 1956:96; and *trilobatus* Duret and Barreto, 1956:93. The type specimens of these nominal species were deposited in the Departamento de Parasitologia da Faculdade de Medicina, Ribeirao Preto, São Paulo, Brazil. They are currently regarded as valid species within the subgenus *Melanoconion* of *Culex*.

### ACKNOWLEDGMENTS

We are grateful to Bruce A. Harrison, E.L. Peyton, and Ronald A. Ward for commenting on the manuscript.

### REFERENCES CITED

- Duret, J.P. 1953. Las especies argentinas de *Culex* (*Melanoconion*) (Diptera-Culicidae). Rev. Soc. Entomol. Argent. 16:67-76.
- Duret, J.P. 1954a. Las especies argentinas de *Culex* (*Melanoconion*) (Diptera-Culicidae). Rev. Soc. Entomol. Argent. 16:99-121.
- Duret, J.P. 1954b. Nuevo mosquito argentino (Diptera, Culicidae). Neotropica 1:23-26.
- Duret, J.P. 1967a. Dos especies nuevas de *Culex* (*Melanoconion*) (Diptera - Culicidae). Neotropica 13:77-84.
- Duret, J.P. 1967b. *Culex* (*Culex*) *chitae* una nueva especie de Colombia (Diptera, Culicidae). Neotropica 13:113-116.
- Duret, J.P. 1968a. *Culex* (*Melanoconion*) *kerri* y *C. (M.) cristovaoi* dos nuevas especies del Brasil. (Diptera, Culicidae). Neotropica 14:11-16.
- Duret, J.P. 1968b. Cuatro especies nuevas de *Culex* (Diptera, Culicidae). Neotropica 14:57-64.
- Duret, J.P. 1968c. *Culex* (*Melanoconion*) *contei* una nueva especie del Brasil y Panama (Diptera, Culicidae). Neotropica 14:121-124.
- Duret, J.P. 1968d. Dos especies nuevas de *Culex* (*Culex*) de la Argentina (Diptera, Culicidae). Physis (B. Aires) 27:323-328.
- Duret, J.P. 1968e. Dos especies nuevas de *Culex* del Brasil (Diptera, Culicidae). Physis (B. Aires) 28:15-19.
- Duret, J.P. 1968f. Cinco especies nuevas de *Culex* [*sic*] (*Melanoconion* [*sic*]) (Diptera, Culicidae). Rev. Soc. Entomol. Argent. 30:69-81.
- Duret, J.P. 1969a. Contribucion al conocimiento de los *Culex* del Paraguay (Diptera - Culicidae). Rev. Soc. Entomol. Argent. 31:3-13.
- Duret, J.P. 1969b. *Culex* (*Melanoconion*) *bahiense* [*sic*] una especie nueva del Brasil (Diptera, Culicidae). Neotropica 15:40-42.
- Duret, J.P. 1969c. *Culex* (*Anoediopora*) *damascenoi* una nueva especie del Brasil (Diptera - Culicidae). Neotropica 15:143-145.
- Duret, J.P. 1969d. Estudio sobre *Culex* (*Melanoconion*) *ocellatus* y sus especies afines (Diptera, Culicidae) [*sic*]. Physis (B. Aires) 29:113-129.
- Duret, J.P. 1970. *Uranotaenia riverai* una nueva especie de Colombia (Diptera, Culicidae). Rev. Soc. Entomol. Argent. 32:43-46.
- Duret, J.P. 1971a. Cinco especies nuevas de culicidos neotropicales (Diptera-Culicidae). Neotropica 17:15-28.
- Duret, J.P. 1971b. Una nueva especie de *Haemagogus* de Nicaragua (Diptera-Culicidae). Neotropica 17:83-86.
- Duret, J.P. 1972. *Culex* (*Anoediopora*) *quasioriginator*, una nueva especie del Brasil. Neotropica 18:1-5.
- Duret, J.P. 1982. *Wyeomyia* (*Dendromyia*) *sirivanakarni* una especie nueva de Panama (Diptera, Culicidae). Rev. Soc. Entomol. Argent. 41:167-170.
- Duret, J.P. and M.P. Barreto. 1956. Notas sobre culicidas do estado de São Paulo, Brasil, com descrições de três novas espécies de *Culex* (Diptera, Culicidae). Rev. Bras. Entomol. 5:81-99.
- Duret, J.P. and R.G. Damasceno. 1955. Notas sobre *Culex* [*sic*] (*Tinolestes* [*sic*]) de Pará, Brasil (Diptera Culicidae). Rev. Ecuat. Entomol. Parasitol. 2:393-409, 3 pl.